Pest Alert

United States
Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
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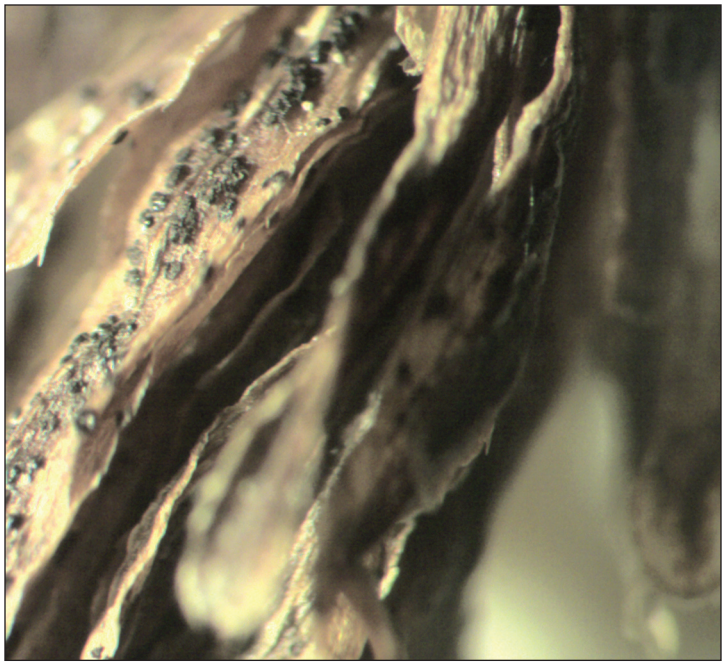
Sirococcus tsugae
Tip Blight on Eastern Hemlocks

Since 2006, observers have noted a tip blight of eastern hemlocks across a wide area in central and southern Maine that includes Androscoggin, Cumberland, Kennebec, Knox, Lincoln, Oxford, Sagadahoc, and York counties. The disease is especially apparent in natural stands on advance regeneration of hemlocks in the understory. In some cases it affects many shoot tips on a single tree. The tip blight infects the distal tips of branches, seldom killing more than one-half inch of shoot tip growth.

The causal pathogen has been identified as *Sirococcus tsugae* based on fruiting structures collected in fall 2009 and confirmed by the USDA Animal and Plant Health Inspection Service from morphological characteristics and genetic typing. This was the first report of *S. tsugae* occurring on eastern hemlock even though this pathogen is known to infect hemlock in the Western United States. It is not known how *S. tsugae* arrived in eastern forests.

Eastern hemlock regeneration in Maine affected by shoot tip blight

Tip dieback on eastern hemlock infected with *Sirococcus tsugae*



Infected needles with spore-producing structures of *Sirococcus tsugae*

Observers have seen symptoms only on the current year's shoot tips. Primary infection is believed to occur in the spring, probably shortly after new shoot growth starts. The blight is easiest to see early in the growing season, but infected dead tips will stay attached to the branch for several months. Spore-producing structures of the fungus may be seen on individual needles with a hand lens, but they are sometimes difficult to find or may not be present. Needle infection by secondary fungi is common and can complicate the diagnosis.

Fortunately, *S. tsugae* on eastern hemlock appears to be less aggressive than on western hemlock. The etiology and epidemiology of this disease on eastern hemlock are not yet known, but tree damage in most stands appears to be light. In some scattered locations, understory hemlocks are more seriously affected and lose a significant percentage of foliage as repeated yearly infections destroy new buds. It may be that the unusually wet weather over the past 4 or 5 consecutive years, from 2005 to 2009, has increased damage from this fungus.

Currently there are no known effective controls for *S. tsugae* on eastern hemlock. In heavily infected stands, it would seem prudent to follow silvicultural practices that would reduce overly dense stocking in understory regeneration. Some weeding and thinning practices may improve air circulation and lead to more rapid drying of foliage after periods of wet weather.

Photographs: Maine Forest Service

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